

Memorandum M-1741

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Digital Computer Laboratory
Massachusetts Institute of Technology
Cambridge, Massachusetts

SUBJECT: METALLOGRAPHIC STUDIES OF FERRITES

To: R. B. Adler

From: D. R. Brown

Date: December 4, 1952

Abstract: Metallographic studies of ferrites will be conducted by both Group 35 and Group 63. Group 35 will undertake a long-range program of fundamental studies. They will do a very thorough job on any samples supplied to them by Group 63, including x-ray spectrographs. Group 63 will undertake a short-range program to observe microstructure of ferrites for quality control and develop techniques for observation of domains. Group 63 will carry out any observations of microstructure involving large quantities of production cores and send only selected samples to Group 35 for detailed analysis.

A discussion on November 28, 1952, included R. B. Adler, D. R. Brown, J. B. Goodenough, A. S. Kulin, H. F. Priest and F. E. Vinal. The meeting was called to discuss the purchase of a Bausch and Lomb Metallograph and associated equipment. The present Leitz Metallograph is most suitable for observations requiring transmitted light. Conversion of this instrument for measurements requiring reflected light would cost several thousand dollars. The Bausch and Lomb instrument would be suitable for observations requiring reflected light only. In consideration of the amount of work to be done and the awkwardness of having one instrument to do two different jobs, purchase of the Bausch and Lomb instrument was recommended.

The metallographic studies of ferrites required by Group 63 were also discussed. Metallographic studies appear to be of increasing importance to Group 63 and a large volume of work will be involved. Also, the development of techniques for observation of magnetic domains should be undertaken in close proximity to those working on the theoretical aspects. In view of these developments, Group 63 will undertake a short-range program to study microstructure of ferrites for quality control and to develop techniques for observation of domains. The big part of this job at the present time is the development of sectioning and polishing techniques. Group 35 will be able to assist Group 63 in getting its short-range program underway.

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Group 35 will undertake a long-range program in the metallography of ferrites. Group 63 will send to Group 35 only carefully selected samples for thorough examination, including x-ray spectrographs.

The program outlined above calls for close cooperation between Groups 35 and 63.

Signed



David R. Brown

DRB/jk

cc: J. B. Goodenough
A. S. Kulin
H. F. Priest
F. E. Vinal
L. Gold